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not therefore of explanation. That changes in a gravitational field may be equally well expressed in terms of accelerations neither explains gravitation nor explains it away; as Brose points out, "Einstein does not seek to build up a model to explain gravitation, but merely proposes a theory of motions. He does not discuss forces as such."¹⁶ Whatever gravitation is due to, it produces (of itself) accelerated motions which, when in different systems, are related by the formulæ of Einstein and Minkowski. If therefore within a non-gravitational system of bodies a gravitational field is suddenly created, an additional acceleration factor is thereby introduced into all the preexisting motions, and the paths of light rays which previously appeared straight thereupon appear to be bent in varying degrees; and this change must appear to be ultimate because of the fundamental rôle, already alluded to, played by light and vision in normal experience.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Making of Humanity. ROBERT BRIFFAULT. London: George Allen and Unwin Ltd. 1919. Pp. 371.

This volume is devoted to the thesis that human evolution is the making of humanity, and that rational thought is the primary means of this progress. By human evolution is meant the natural growth of human life from "troglodytic man" to a rationally organized social life which shall satisfy the demands of human life. And by humanity is meant this organized whole of human life, which is a real organic unit over and above the individual human organisms which compose it. This organism of humanity is, however, not something already existent as a finished fact, but something in process of making. The author's purpose is to describe *how* it is being made. This description naturally takes the form of a philosophy of history. The problem is: What has been the constant factor, the real cause of human progress?

Mr. Briffault briefly criticizes the "endogenous theories" which attempt to explain human progress by man's mental capacities or by his racial characteristics on the ground that since they neglect to take into account the conditioning factors of man's environment they merely argue in a circle. Human progress is not explained by arguing that man is by nature a progressive animal. "A real se-

¹⁶ *The Theory of Relativity*, pp. 24, 25.

quence of cause and effect first becomes apprehensible when attention, instead of being centered on the mind and the race, is directed to the environment in relation to which they react and develop" (p. 37). But when we turn to the "exogenous theories," those of "geographic and economic determinism," they also are inadequate because they neglect the human factors. Geographical and economic changes can account for *changes* in human life, but not for a *continuous* progress. We never discover the real cause in the natural conditions of progress, inasmuch as a cause, at least when speaking of progressive processes, is more than a conditioning factor. It is a *constant factor*. Mere environmental changes can, therefore, never account for the continuity which seems to be a characteristic of human evolution.

An adequate cause can only be found by studying man in his reactions to his environments. It is in the field of human adaptation to environment that the real cause for progress is to be found. The author then attempts to prove that the type of reaction which he calls "rational thought" is the fundamental cause of human progress. For rational thought is man's peculiar adaptive mechanism. "All other factors have been, *not means or efficient causes of the process of progress, but conditions*. They have promoted progress or impeded it, sped it or retarded it, according as they have acted favorably or unfavorably upon the operation and development of rational thought. In no case is their relation to the fact of progress continuous and invariable; their influence may be at one time favorable and at another time unfavorable" (p. 51). "But its actual forward development, its progressive character is exclusively the effect of that particular instrument of adaptation by which the human race has been differentiated" (p. 51.) "Although no one perhaps will directly demur to the statement, when put in so many words, that man is first and foremost *homo sapiens*, that all his powers are dependent upon the rationality with which he employs them, and that he succeeds or fails according as he thinks and acts rationally or irrationally, yet many are quite prepared to uphold views directly implying an entirely different estimate of the sources of human power; and there is a deeply rooted and widespread disposition to disparage rational thought, and exalt at its expense other supposed powers and methods as the talismans of true human development" (pp. 52-53).

These quotations are, I think, sufficient to show the author's chief interest in writing the book. The book is an ardent plea for (rather than a sound demonstration of) the controlling power of rational thinking or intelligence. It is refreshing to read such a plea at a

time when the champions of other ways of salvation are so popular. Faith in intelligence is still on the defensive. The straight and narrow path of reason is still unattractive, and those who follow it are even fewer than those who preach it! And to-day it is decidedly unfashionable philosophy to be a "rationalist" or an "intellectualist."

But at least two of the reasons why these are usually terms of reproach are evident in this book. First, the preachers of rational thought so readily beg the question. They assume that it is fairly obvious which opinion of a number of opinions is the rational one. To condemn thinking because it is irrational is the easy and obvious thing to do. But it usually throws little light on the real problem, which is: *Why* is it irrational? After all few people are willing to champion unreasonableness. I say unreasonableness rather than irrationality, because those who pride themselves on being "antirationalists" usually do so on the grounds that rationalism is unreasonable. And it is precisely because rationalism has been both more and less than the defense of "reasonableness," that it has become discredited. Mr. Briffault's book seems to me to be open to this fundamental objection. It has much to say about the value of rational thought; but little to say about its concrete definition. The former might nowadays be taken for granted; the latter is a vital and difficult problem.

In answer to this charge Mr. Briffault would, of course, refer to his chapters on "Rational Thought, Its Origins and Functions," and to his chapters on "Custom-Thought" and "Power-Thought." But I doubt whether a study of these chapters will throw much light on the problem. Rational thought, for example, is defined as "an adaptation of the organism to the most general and fundamental characters of man's external environment" (page 48). And again in more detail: "Rational thought is the human improvement on the biological method of trial and error; a perfected, economical, immensely more effective form of it. If one course of action proves successful and another fails *there is a reason for it*. If sufficient knowledge had been taken, it would have been possible to know beforehand which was the rational and which the irrational course. The successful result is that to which efficient thought would have led, had it been applied. With the growth of rationality, the development of experience, of available data, and of the habit of rational thought, its powers contribute more and more to the results of the method of trial and error, shorten and facilitate and economize its waste in an increasing degree. The sphere of that method becomes narrowed, that of rational thought extended. The more efficient method of adaptation tends constantly to prevail" (p. 55). Now that may all be true enough, but how does it help us in evaluating the rationality

of current doubtful opinions? It is all *ex post facto*. It is a fairly simple matter to see one's mistakes after they have been made, but it is another matter to acquire the capacity of avoiding mistakes. To say that "the successful result is that to which efficient thought would have led, had it been applied," is mere mockery. Mr. Briffault has little trouble in exposing to ridicule the irrationalities revealed in human history, and to point the moral that if people had been more rational more progress would have been made. (Of course it would, *by definition!*) But that still leaves the real problem of discovering the technique of rationality. How are opinions to be evaluated?

Mr. Briffault does not leave this question entirely unanswered; he makes two practical suggestions for the evaluation of thought. According to him the two most persistent and vicious forms of irrational thought are custom-thought and power-thought. Custom-thought is thinking dominated by tradition, habit, dogmatism. Power-thought is thinking dominated by the exercise of power of one individual or class over others. Custom-thought takes its rise in the earliest forms of primitive thinking. Power-thought is a product of the ever-increasing differentiation of society into classes and conflicting interests, and the consequent wielding of power by some over others. As this process continues, power-thought becomes more and more prevalent.

The history of human progress is the story of the conflict of rational thought with these two types of irrationality.¹ In every case where progress has been thwarted, one or both of these two will be found responsible. And wherever progress is made, it will be found to consist of a victory of rational thought over these. Part II., "The Genealogy of European Morals," is devoted to the elaboration of this idea. And it is in this part that the author makes his own contribution to the philosophy of history. His purpose is to show how European history illustrates the progressive power of rational thought over custom- and power-thought.

The story falls into two main parts—the Ancient, or Græco-Roman phase of civilization, and the Modern. I quote the author's own summary of the "ancient phase," which is admirable for its brevity and clarity: "Three broadly distinguished stages mark the course of human evolution. First, the long primitive tribal stage in which custom-thought ruled absolute, broken only now and again, and only to be renewed with but slightly weakened force, by material discover-

¹ Theoretically, of course, custom-thought and power-thought need not be irrational, and certainly are not in many cases. (I suspect that the struggle between the capitalists and the proletariat is such a case in the author's own mind!) Mr. Briffault does not justify his assumption of their irrationality theoretically. Whatever justification it may have lies in its practical utility.

ies and the clash of cultures. To that original phase succeeded that of the great oriental civilizations wholly dominated by theocratic power-thought whose absolutism is only occasionally and ineffectually challenged by military power, and which, owing to its greater subtlety of direction and elasticity of interpretation, virtually nullifies the disruptive effects of crossfertilization. Thirdly comes the extraordinarily felicitous accident of Greece, which at a blow almost completely liberates the human mind from custom- and power-thought, and raises it to undreamed-of heights of power and unfettered efficiency. But while it utilizes all the available data of rational thought, it contributes little to their increase, and its poverty in that respect cripples the power which it derives from freedom. The world contains as yet too much barbarism and too much orientalism; and the Græco-Roman phase of civilization succumbs at last to a gigantic tide of these elements which submerge and overwhelm it. It is eventually succeeded by a fourth phase, the one in which we live" (p. 162).

This fourth or modern phase is in every sense a new development. It is usually supposed to begin with a "renaissance," a rebirth of the intellectual life of the ancients. But the author finds in the "*soi disant renaissance*" an obstacle rather than a cause of progress. It was thoroughly dominated by custom-thought, and hence pedantic and artificial to the core. The real rebirth of Europe is to be attributed to other causes: (1) to the development of natural science among the Arabs and Moors and its spread in Europe; (2) to the commercial revolution; (3) to the force of reason revealing the romantic inconsistencies of the medieval theology which it had itself erected. The reason these forces have not made more progress than they have is to be sought in the fact that the political history of Europe is nothing more than a story of the conflicts of various powers, each dominated exclusively by power-thought. There was first the theocratic power struggling against the power of kings, followed by the struggle of the kings against the unruly power of the moneyed classes; and this in turn followed by the struggle for power between the bourgeoisie and the proletariat. All these struggles are shot through with duplicity, trickery and treachery, which when "divested of those decent veils with which its nakedness is customarily disguised by the reflections of power-thought appear to be conducive to a Yahoo view of humanity" (p. 246). It is this fact of European history which has made it impossible for morals to gain a foothold in the practical control of European society. Ethics has been forced to remain theoretical and speculative; morals are supposed to have nothing to do with politics. But in spite of this, morality has

evolved steadily and is increasingly becoming a controlling factor in life. It has thus evolved precisely because it is a form of *rational* thought. "Moral progress has in every case consisted not in a development of feeling, but in a development of thought; the rational evolution has preceded and brought about the ethical evolution" (p. 300). "So long as the extra-rational foundations of privilege were unquestioningly accepted, claims to equality, to right, to justice, could not and did not arise. So long as the divine nature of kingship was undisputed, every abuse of tyranny could exist unchallenged, so long as feudal power was looked upon as part of a super-humanly established order, every excess to which unchecked authority gives rise could proceed unquestioned. It is only when they have come to perceive that what they regarded as a sacred truth was a lie, that what they had been taught to look upon as right was iniquitous wrong, it is then only that the injured have rebelled. It is the exposure of the basic irrationality of the justifying lie, which brings about the overthrow of the abuse. The oppressed have only revolted against tyranny or injustice, however atrocious, when they have clearly perceived it as irrational, mendacious, false" (p. 282).

This illustrates the second reason for objecting to this type of rationalism. It not only begs the question, but it also shifts its ground from a defense of rational thought as the only rational basis for moral life, to the rationalization of history. It is one thing to show the futility of an irrational social life, and it is another thing to maintain that *historically* its irrationality has been the cause of its futility. I have my suspicions about any monistic philosophy of history, but it seems to me much easier to justify an economic interpretation of history, than a "rationalistic." Usually the economic consequences of an abuse are more potent and primary forces for progress than its intellectual consequences. Mr. Briffault appears to me here to be involved in a *post hoc ergo propter hoc* fallacy. It is the counter-fallacy to what he calls the "misological" fallacy. Consequently it seems to me that *The Making of Humanity* is valuable not so much as a philosophy of history as for the light it throws on many of our moral distinctions. For instance, one can not read the book without coming to a fresh realization of the tremendous influence of "power-thought" on our moral ideas, especially the idea of "corruption." Likewise, one can not read the chapter on "Current Opinion on Opinions" without coming to a fresh realization of the vogue of the "misological" fallacy. It is impossible here even to indicate the many clever ideas in which the book abounds. It is unfortunate that they are so often concealed by a needlessly pompous and repetitious style.

There is one contradiction which runs through the entire book, and which is theoretically fundamental. On the one hand the author speaks of the moral law as a natural law, of progress as an inevitable accompaniment of human evolution, of natural selection, *etc.* On the other hand the author speaks of the control of evolution, and makes a plea for education, closing with this sentence: "In the phase which its evolutionary aims have reached the first indispensable reform which must precede or accompany all others, if they are to be aught but stages in the long process of trial and failure, is an organized effort to provide for the handing down with untampering honesty the full measure of those powers which man has acquired, and to transmit them to the race. Failing such a provision, troglodytism and medievalism must necessarily continue with us, and all attempts to shake off the dead hand of unburied evil must remain essentially ineffectual" (p. 371). To me this seems to raise the question of what after all is meant by evolution and laws of nature, *etc.* I think we owe a vote of thanks to Mr. Briffault for bringing out this contradiction, or at least this ambiguity so obviously and frankly.

Mr. Briffault's book, however, deserves more positive justification than that. In a time when the protagonists of intelligence are obviously disheartened, when courage is failing, to bring forth an enthusiastic defense of the power of reason is a real service.

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JOURNALS AND NEW BOOKS

THE AMERICAN JOURNAL OF PSYCHOLOGY. October, 1920. *An Experimental Study of Visual Movement and the Phi Phenomenon* (pp. 317-332) : F. L. DIMMICK. — The integration of a time and quality element in a gray flash gives the perception of movement in vision. *A Psychological Interpretation of Modern Social Problems and of Contemporary History: A Survey of the Contributions of Le Bon* (pp. 333-369) : HARRY ELMER BARNES. — Le Bon was not an accurate social scientist but suggested some valuable theories. He emphasized psychic traits as being the determining factors of society rather than institutions. Some of the traits named are mysticism, racial tendencies and national characteristics. *A Psycho-Analytical Study of Edgar Allan Poe* (pp. 370-402) : LORINE PRUETTE. — Poe as an only boy had many weaknesses of an only child. His poetry shows a high degree of introversion and flight from reality. *Minor Studies from the Psychological Laboratory of Clark University. Highest Audible Tones from Steel Cylinders* (pp. 403-406) : C. C. PRATT. — The limen is something less than